

WHAT IS CLAIMED IS:

1. A connector assembly (C) for connecting a first connector (10; 220; 340) and a second connector (40; 130; 250; 320) as a first support (M) and a second support (B) are assembled in an automotive vehicle, wherein:

at least one of the first support (M) and the second support (B) having at least one guide rail (32; 232; 362; 351) extending in a longitudinal direction (LD) intersecting a connecting direction (CD) of the first connector (10; 220; 340) and the second connector (40; 130; 250; 320); and

the first connector (10; 220; 340) being provided with the guide rail (32; 232; 362; 351) including at least one guidable portion (27F; 27R; 235; 344; 325) which is engaged with the guide rail (32; 232; 362; 351) for relative movement along the longitudinal direction (LD) of the guide rail (32; 232; 362; 351).

2. The connector assembly of claim 1, wherein the guidable portion (27F; 27R; 235; 344; 325) is inclinable in an inclination direction (PD) with respect to the guide rail (32; 232; 362; 351) substantially about an axis (28) intersecting both the longitudinal direction (LD) of the guide rail (32; 232; 362; 351) and the connecting direction (CD) of the two connectors (10, 40; 130).

3. The connector assembly of claim 1, wherein the guide rail (32; 362) is rib-shaped, and two of the guidable portions (27F, 27R; 344) are provided to hold the guide rail (32; 362) from opposite sides and the guidable portions (27F, 27R; 344) being curved so that spacing therebetween is shortest at a contact position (28) with the guide rail (32; 362).

4. The connector assembly of claim 1, wherein the first connector (10; 220; 340) includes a receptacle (12; 223; 332) into which the second connector (40; 130; 250; 320) is fittable, and at least one slanted guiding portion (18; 225; 336) widened substantially at an opening edge of the receptacle (12; 223; 332).

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5. A connector (40; 130; 320) for a connector assembly (C) for connecting a module-side connector (10; 330) on a module (M) with a body-side connector (40; 130; 320) on a body (B) in an automotive vehicle, wherein the connector (40; 130; 320) comprises:

a mounting portion (46; 136; 325) at a rear side of the connector (40; 130; 320) for fixing the connector (40; 130; 320) to one of the module (M) and the body (B);

a wire cover (42; 136; 323) for at least partly covering both the rear side of the connector (40; 130; 320) and wires (135;) drawn out from the rear side of the connector (40; 130; 320), the wires (135) being bent to extend substantially along the rear side of the connector (40; 130; 320); and

the mounting portion (46; 137; 325b) being formed on a rear surface of the wire cover (42; 136; 325).

6. The connector of claim 5, wherein the mounting portion (46; 137; 325b) is formed by at least one rib (138; 325b) extending along the rear surface of the wire cover (42; 136; 325).

7. The connector of claim 6, wherein the connector (40; 130; 320) comprises at least one outward-displacement restricting portion (142) for restricting an outward displacement of a side wall (136S) of the wire cover (42; 136; 325) by contacting the side wall (136S) from outside.

8. The connector of claim 7, wherein the outward-displacement restricting portion (142) is at least partly accommodated in a corresponding recess (144) formed in the outer surface of the sidewall (136S) of the wire cover (42; 136; 325).

9. A connector assembly comprising the connector of claim 5, and a mating connector (10; 330) formed with a receptacle (12; 332) into which the connector (40; 130; 320) is fittable.

10. The connector assembly of claim 9, wherein a guiding portion (18; 336) for correcting a displacement between the connector (40; 130; 320) and the mating connector (10; 330) is formed at an opening edge of the receptacle (12; 332).

11. A connector assembling construction for connecting a first connector (10; 220; 330) on a module (M) and a second connector (130; 250; 320) on a body (B) along a connecting direction (CD) as the module (M) is assembled with the body (B) in an automotive vehicle, wherein:

a floating mechanism (230; 362, 344) to support at least one of the first and second connectors (10, 130; 220; 250; 330, 320) for displacement in a direction (FD) intersecting the connector connecting direction (CD); and

the floating mechanism (230; 362, 344) comprising restricting means (240; 345) for restricting a displacement of the connector (10; 220; 330) with the connectors (10, 130; 220; 250; 330, 320) unconnected and canceling the restriction on displacement of the connector (10; 220; 330) after connection of the first and second connectors (10, 130; 220; 250; 330, 320) is started.

12. The connector assembling construction of claim 11, wherein the first connector (10; 220; 330) has a receptacle (12; 223; 332) into which the second connector (130; 250; 320) is fittable, a guiding portion (18; 225; 336) for correcting displacement between the connectors (10, 130; 220; 250; 330, 320) being formed at an opening edge portion of the receptacle (12; 223; 332).

13. The connector assembling construction of claims 12, wherein the floating mechanism (230; 362, 344) comprises a guide rail (232; 362) on at least one of the module (M) and the body (B) and extending along the direction (FD) intersecting the connecting direction (CD) of the connectors (10, 130; 220; 250; 330, 320), and a floating member (17; 234; 360) movable substantially along the guide rail (232; 362) while supporting the connector (10; 220; 330).

14. The connector assembling construction of claim 13, wherein the restricting means (240; 345) comprises a displacing means (117a; 242-244, 253; 338-341) for relatively displacing the connector (10; 220; 330) substantially in the connecting direction (CD) with respect to the floating member (17; 234; 360) as the connection of the first and second connectors (20, 50) progresses.

15. The connector assembling construction of claim 14, wherein the restricting means (240; 345) comprises contact means (245, 246; 364) on at least one of the floating member (17; 234; 360) and the connector (10; 220; 330), a movement of the floating member (17; 234; 360) substantially along the guide rail (232; 362) is restricted by mutual contact of the contact means (245, 246; 264) when the first and second connectors (10, 130; 220; 250; 330, 320) are unconnected; and the contact means (245, 246; 264) are disengaged to cancel the restriction on movement of the floating member (17; 234; 360) along the guide rail (232; 362) when the connector (10; 220; 330) is displaced with respect to the floating member (17; 234; 360) by the displacing means (245, 246; 264), as the connection of the connectors (10, 130; 220; 250; 330, 320) progresses.

16. A connector connecting construction for connecting a movable connector (40; 130; 220; 330) with a waiting-side connector (10; 250; 320) to be mounted on a fixed member (B), wherein one of the waiting-side connector (10; 250; 320) and the fixed member (40; 130; 220; 330) comprises a first supporting member (32; 232; 362) extending in a direction (TD) intersecting a connecting direction (CD) and slidably supporting the respective connector (10; 250; 320) substantially along an extending direction (TD) of the supporting member (32; 232; 362).

17. The connector connecting construction of claim 16, wherein the movable connector (40; 130; 220; 330) is mounted on an assembling member (M) to be assembled with the fixed member (B), the two connectors (10, 40; 10, 130; 250, 220; 320, 330) are connected as the assembling member (M) is assembled with the fixed member (B), and one of the movable connector (40; 130; 220; 330) and the assembling member (B) comprises a second supporting member (47; 151; 351) extending in a direction (FBD) intersecting the connecting direction (CD) and substantially normal to a sliding direction (TD) of the waiting-side connector (10; 250; 320) and slidably supporting the movable connector (40; 130; 220; 330) along an extending direction (FBD) thereof.

18. The connector connecting construction of claim 17, wherein the first supporting member (32; 232; 362) is a guide rail (32; 232; 362) extending substantially straight along a direction substantially normal to the connecting direction (CD) and a guidable portion (235; 344) slideable along the guide rail (32; 232; 362) and holding the guide rail (32; 232; 362) from front and back sides with respect to the connecting direction (CD).

19. The connector connecting construction of claim 18, wherein one of the connectors (10; 250; 320) includes a receptacle (12; 223; 332) into which the other of the connectors (10; 250; 320) is fittable, the receptacle (12; 223; 332) having a guide surface (225; 336) for guiding the connectors (10; 12; 223; 250; 320; 332) into substantial alignment, and a restricting means (345, 364; 346, 365; 326, 353; 327, 354) to restrict a slidable area (C; D) of at least one of the connectors (10; 250; 320) permitted by the respective supporting member (232; 362; 351) within a guidable area (A; B) by the guide surface (225; 336) of the receptacle (12; 223; 332).

20. The connector connecting construction of claim 17, wherein the waiting-side connector (10; 250; 320) is mounted on the fixed member (B) with a connecting surface thereof faced up, the movable connector (40; 130; 220; 330) is mounted on the assembling member (M) with a connecting surface faced down, and the movable connector (40; 130; 220; 330) is connected with the waiting-side connector (10; 250; 320) by displacing the assembling member (M) substantially downward with respect to the fixed member (B).

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21. A method of connecting a module-side connector (10; 220; 330) to be mounted on a module (M) and a connector (130; 250; 320) to be mounted on a body (B) as the module (M) is assembled with the body (B) in an automotive vehicle, comprising the following steps:

supporting at least one of the first and second connectors (10, 130; 220; 250; 330, 320) by a floating mechanism (230; 362, 344) for relative displacement in a floating direction (FD) intersecting a connector connecting direction (CD) with respect to the module (M);

restricting a relative displacement of the module-side connector (10; 220; 330) when the connectors (10, 130; 220; 250; 330, 320) are unconnected;

guiding the module (M) to slide in the floating direction (FD) intersecting with a connecting direction (CD) of the first and second connectors (10, 130; 220; 250; 330, 320) after the connection of the first and second connectors (10, 130; 220; 250; 330, 320) is started and while the module (M) is brought closer to the body (B); and

canceling the restriction on the displacement of the connector (10; 220; 330) after the connection of the first and second connectors (10, 130; 220; 250; 330, 320) is started.